Questions and Answers Fact Sheet
Kootenai River Watershed
Kootenai River Ecosystems Project
November 2004

1. *What is being proposed and who is involved?*

   The Kootenai Tribe of Idaho (KTOI), the Idaho Department of Fish and Game (IDFG), and the Bonneville Power Administration (BPA) propose to add liquid nitrogen and phosphorus to the Kootenai River from late June through September each year starting in 2005. The liquid nutrients would be added through a steel pipe gravity-fed from holding tanks. The proposed location for adding the nutrients to the river is near the Montana/Idaho border. Researchers and river managers would regularly evaluate the effects of the nutrient additions to determine if the project should continue permanently.

2. *Why are you adding nutrients to the Kootenai River, and why now?*

   The Kootenai River is currently nutrient poor and has been so for about 25 years. Low nutrient levels are responsible for the low productivity found in the river and part of the reason that important fish populations are not doing well. Nutrients that once flowed downriver from Canada are now being trapped in the reservoir behind Libby Dam. The separation of the Kootenai River from its historic floodplain (downstream of Bonners Ferry, ID) has also resulted in less available nutrients for river productivity.

3. *What does river productivity mean specifically?*

   River productivity refers to the amount of animals and plants a river system can produce. Specifically, we are looking at fish production and the production of aquatic insects and algae that the fish rely on. Nutrients in the river system stimulate algae growth, which aquatic insects feed on. Fish then feed on the aquatic insects and continue the food chain. By replacing nutrients that are lost behind Libby Dam, we hope to bring fish productivity up to a level that would have existed if the dam were not there.

4. *What kinds of nutrients are being added? What form are they in?*

   Phosphorus and nitrogen would be added to the river in liquid form.

5. *How will the nutrients be applied to the river and how much will be added?*

   Nutrients would be added through a gravity-fed system and would travel down a high-density steel pipe from a holding tank. The nutrients would enter the river through an outlet nozzle (located on the bottom of the river) that precisely controls the amount applied. On average, about one half gallon of nutrient per minute will be fed to the river during the growing season. This number is subject to change with river discharge and the target concentration option that river managers choose. This is not very much, considering the amount of water flowing in the river. The half gallon of nutrients will mix with approximately 4.5 million gallons of river water during any given minute (based on a river flow of about 10,000 cubic feet per second).

6. *What time of the year will nutrients be added to the river?*

   Nutrients would be added to the Kootenai River from late June through September each year. They will not be added during the fall, winter or spring months. The idea is to add nutrients during the active growing season, just as farmers do in their fields or gardens. The spring season, though part of the growing season, is not included because river flows are too high and muddy to allow the nutrients to work properly.

7. *Where will the nutrients be added to the Kootenai River and why?*

   The addition of nutrients is most beneficial in river reaches where sunlight can reach the bottom of the river to promote algae growth on rocks. These conditions exist between Bonners Ferry and the Idaho-Montana border.

8. *When would nutrient additions begin?*

   The Kootenai Tribe of Idaho and Idaho Dept. of Fish and Game are proposing to begin adding the nutrients to the river in summer 2005.

9. *How do we know if this will work?*

   The International Kootenai Ecosystem Restoration Team (a group of scientists studying the river since 2000) believes adding nutrients to the river will be beneficial to fisheries in the long run. Positive results are expected, based on 20 years of successful implementation of nutrient restoration projects in the Northwest.

10. *Would the added nutrients harm people or wildlife?*

    No. The small amounts of concentrated nutrients will be diluted in the river very quickly and will not be harmful to wildlife or people using the river for recreation.

11. *How long will it take for the nutrients to take effect in the river?*

    Based on studies conducted on other treated rivers, the effects can be seen quickly. Algae growth is usually observed within 1 to 2 months after treatment begins. Some fish species, such as whitefish, can benefit within the first year, but most fish species respond after nutrient addition has occurred for some time, usually 2-3 years. The reason for this is that it takes a couple of years for the river's food base (aquatic insects) to increase following nutrient additions.

12. *Some agencies view excess nutrients in water bodies as bad for the environment. Is that true, and if so, why do you want to add them to the river?*

    It is true that too many nutrients in a river or lake is not good, causing over-production in the form of nuisance algae blooms. However, the opposite is true also; that is, too few nutrients can be harmful by stifling the river's productivity. It's best to be in the middle of the road; that is, you don't want too much or too little, you want a moderate amount of nutrients that will stimulate the river's productivity. We are proposing to restore nutrients to the level they would be in the river without Libby Dam's influence.

13. *Is there going to be monitoring of the nutrient additions in the Kootenai River?*

    Yes, there will be extensive monitoring of this project. Water quality will be monitored for nutrient levels, and algae will be monitored for species present and amounts growing in the river. The same will be done for aquatic insect productivity. Yearly fish surveys will be conducted to help evaluate if the nutrients are working.

14. *What are potential positive outcomes of adding nutrients to the Kootenai River?*

    Positive outcomes may include increases in desirable sport fish in the river, such as rainbow and cutthroat trout and whitefish. Benefits to white sturgeon, burbot, bull trout, and kokanee growth and population numbers may be additional positive outcomes. Since fishermen would find better fishing opportunities, more fishing interest would in turn benefit local businesses.

15. *What are potential negative outcomes of adding nutrients to the Kootenai River?*

    Possible negative outcomes could include the formation of algae blooms and increases in non-game fish species, such as suckers. The ecology of the river will be monitored closely to detect undesirable outcomes, and nutrient additions would be stopped should these effects occur.

16. *Since the Kootenai River is a backup for drinking water for Bonners Ferry, will there be an effect on the use of the river for drinking water?*

    These nutrients are naturally found in all waterways. The nitrogen and phosphorus molecules break down very quickly and are absorbed by algae quickly. Levels of nitrogen and phosphorus in the water will likely change very little compared to historical measurements and would be safe for consumption.

17. *Are there metals in the nutrients proposed to be added to the river?*

    Two nutrients are being added, nitrogen and phosphorus. The nitrogen is pure and contains no metals or other impurities. The phosphorus has trace amounts of some metals (iron, aluminum and, to a lesser degree, zinc are most common). Since phosphorus is mined from the earth's crust, some impurities are associated with its ore. The amount of metals that will be added to the river is very small, less than one tenth of one percent of the dissolved metals that already exist in the Kootenai River.

18. *How much dissolved metal already exists in the Kootenai River and where does it come from?*

    The amount of dissolved metals found in the river (referred to as ambient level) is very low. Water quality sampling by the Kootenai Tribe has found trace amounts of copper, zinc, lead and a few other metals. But they are all well below levels the EPA considers harmful to aquatic life. The metals found in the river come from the natural erosion of bedrock and old mining operations.

19. What are the roles of the agencies involved in this project?

The Kootenai Tribe of Idaho is the lead agency in this effort. The project is funded by Bonneville Power Administration. The Tribe's BPA-funded *Ecosystem Project* has been collecting data and studying the river's productivity since 1995. The Idaho Department of Fish and Game has been collaborating with the tribe on the project since 2000. Both agencies will work together in the upcoming years to monitor productivity and apply nutrients to the Kootenai River.